Clackamas River Water

2020

Drinking Water Quality Report

Based on data from calendar year 2019

North (Clackamas) Service Area PWSID #4100187

South (Clairmont) Service Area PWSID # 4100594

Questions concerning this report or requests for more information should be directed to:
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Why am I getting this report?

Clackamas River Water (CRW) is pleased to welcome you to our 2020 Water Quality Report. The report provides you with an easy to follow overview of our water. We hope that you will take a minute to review this report and learn more about your drinking water.

Drinking water regulations require CRW to provide this information to customers each year. Most of the language is required by the EPA to make sure that our ratepayers know what is in their drinking water. CRW has tried to make this complex information readable and produce this report at a low cost.

Beginning in 2013, the EPA no longer requires a paper copy of this report to be mailed to each customer and allows electronic posting on the utility website to serve as notice. CRW saves thousands of dollars in paper and printing costs as well as postage fees.

A Note to People with Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to reduce the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

About This Report

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Oregon Health Authority Drinking Water Program is charged with monitoring compliance with those limits by water providers in the state.

All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. For more information about contaminants and potential health effects call the EPA's Safe Drinking Water Hotline at 800-426-4791 or visit www.epa.gov/safewater.

The sources of drinking water, both tap and bottled, include surface sources such as rivers, streams, lakes, and reservoirs, and groundwater sources (wells). As water moves through the ground or over surfaces it dissolves naturally occurring minerals and, in some cases, radioactive material. Water can also pick up substances resulting from the presence of human or animal activity. Contaminants that may be present in the source water include:

Microbial- such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, pet waste, and wildlife.

Inorganic- salts and metals, which can occur naturally or result from urban storm runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides- from a variety of sources such as agriculture, stormwater runoff, and residential uses.

Organic Chemicals- both synthetic and volatile, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive- can be naturally occurring or can be the result of oil and gas production and mining activities.

The Clackamas River, Our Source

The Clackamas River begins at an elevation of 4,909 feet on the western slopes of the Cascade Range in the Mt. Hood National Forest. Forty seven miles of the river are federally protected as part of the National Wild and Scenic Rivers System.

The Clackamas River Watershed drains nearly 940 square miles of forests, mountain meadows, agricultural land, suburban neighborhoods, and light industrial areas before meeting with the Willamette River. More than 300,000 Oregonians rely on the Clackamas River for high quality drinking water, hydroelectric power, and outdoor recreation.

CRW is committed to maintaining and protecting the Clackamas River and maintains a vigorous watershed management and monitoring program. CRW also participates as a member of the Clackamas River Water Providers (CRWP), a coalition of drinking water providers committed to promoting the health and sustainability of the Clackamas River Watershed by identifying, mitigating, and preventing ecosystem degradation to ensure the delivery of high quality drinking water to the community. For more information about the CRWP visit:

http://www.clackamasproviders.org

Source Water Assessment

A source water assessment of the Clackamas River Basin was completed in 2003 by the Oregon Department of Environmental Quality (DEQ) and reported under the requirements and guidelines of the Federal Safe Drinking Water Act. The assessment identifies potential sources of contamination within the watershed allowing water providers, businesses, and individuals in the Clackamas River Basin to begin developing strategies to protect the source of their drinking water. To view a summary of the assessment visit https://goo.gl/qPSAMS.

About Us

Clackamas River Water is a regional water service provider organized under Chapter 264 of the Oregon Revised Statutes (ORS). CRW serves a population of about 50,000 directly, and up to 80,000 people are served when the populations of wholesale customers are included.

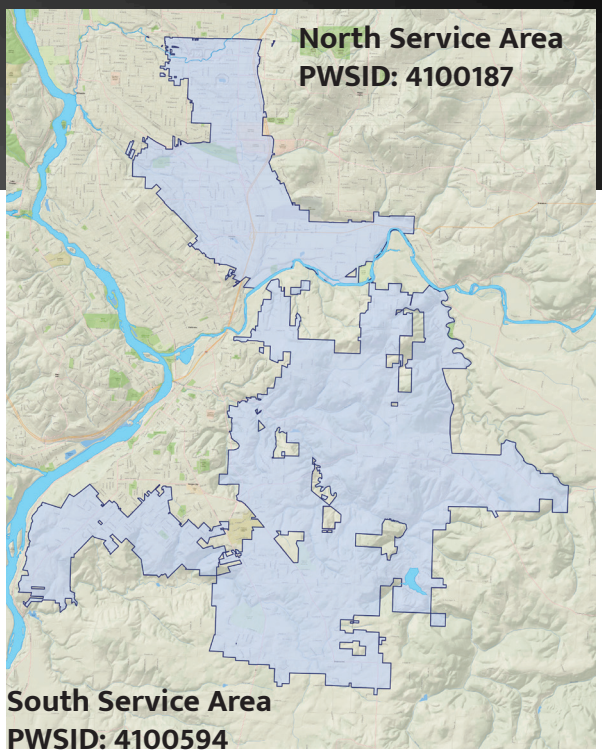
CRW has maintained more than 45 years of exceptional water treatment plant operation, providing water to nearly 12,000 service connections, and maintaining a distribution system consisting of approximately 262 miles of pipeline, 15 reservoirs, and 12 pump stations. CRW has two service areas the North (Clackamas) and South (Clairmont).

If your home or business is north of the Clackamas River you are in our North (Clackamas) Service Area. This service area encompasses parts of unincorporated Clackamas County, Milwaukee, Clackamas, and Portland. Customers in the North Service Area receive water that is treated by Clackamas River Water's water treatment plant.

If your home or business is south of the Clackamas River you are in our South (Clairmont) Service Area. This service area encompasses parts of unincorporated Clackamas County and Oregon City. Customers in the South Service Area receive water that is treated by South Fork Water Board but serviced by Clackamas River Water.

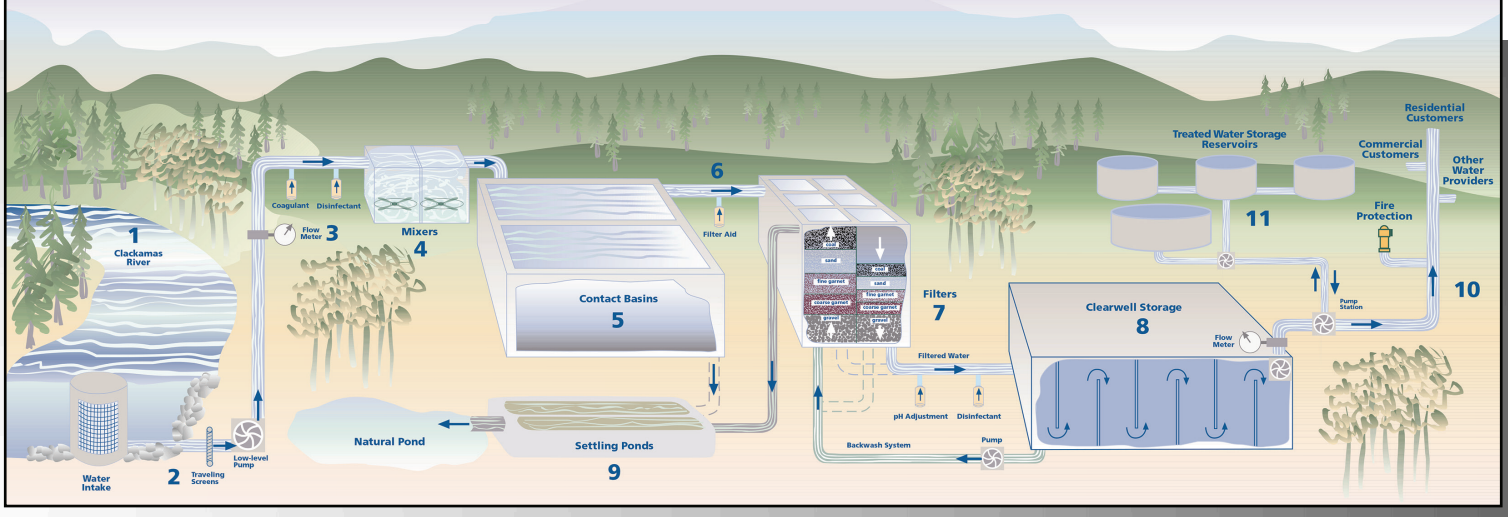
This report covers water quality data for BOTH the North (Clackamas) and South (Clairmont) Service Areas

Service Area



Our Water Treatment Process

1. **The Clackamas River** is an exceptionally clean source of surface water. The Clackamas River watershed covers almost 950 square miles, much of it undeveloped forest lands. Timothy Lake and runoff from Ollalie Butte make up the headwaters of the Clackamas River, and many tributary streams contribute to the flow of the river.
2. Raw river water is collected by **intakes** in the Clackamas River and flows by gravity through debris removal **traveling screens. Pumps** then lift the water 70 feet to the treatment plant.
3. Raw Water from the river is **metered** for flow and water conditions, and that information is used to determine the ideal mix of treatment chemicals to add to the water as it enters the plant. Like most natural waters, Clackamas River water contains suspended and dissolved substances that can be removed by physical and chemical means.
4. As the water enters the plant, chlorine is added to **disinfect** the water by inactivating potentially dangerous microorganisms. **Coagulants** are added to help settle the water and remove small particles. Coagulation and flocculation take place as very small particles combine with one another and form larger chains of particles (floc) that can settle or be filtered.
5. **Contact Basins** cause particle collisions resulting in larger floc and settling of the heaviest of the floc. After some settling has occurred, the water flows to the filters for removal of the finest particles.
6. **Filter aid** chemicals make floc particles stronger and more easily removed when the water passes through plant filters. As the water passes down through the filter layers, the particles cling to the filter media, and the filtered water is piped to the **clearwell** after it receives a final chemical adjustment.
7. **Filter layers** are composed of anthracite coal, silica sand and garnet sand. The coal on top is the lightest layer, the silica sand is heavier and the garnet is the heaviest, at over four times the weight of water. The filter media expands and mixes together when the water flow is reversed for backwash, and collected sediments and floc are washed away. After backwash, the media returns to its original layers because of the relative weights for each layer.
8. **The clearwell** collects filtered water once the **pH and chlorine** levels are adjusted to assure optimum levels when the water leaves the plant. The 1.2 million gallon clearwell contains large baffles (internal walls) to keep the water in the clearwell long enough for the chlorine to complete its disinfection process.
9. When filters are backwashed, finished water is pumped from the clearwell to the bottom of the filters to wash trapped floc to the waste **settling ponds.**
10. **Finished water is pumped from the clearwell** to residential and commercial district customers, other water providers and throughout the system for fire protection.
11. **Reservoirs** hold large water reserves for times of increased water use such as hot or cold spells, fires, varying customer needs, and to maintain consistent water pressure.



Notes on Contaminants

Barium, Copper, and Nickel

These metals are elements found in the earth's crust. They can dissolve into water that is in contact with natural deposits. At the levels found in CRW's drinking water, they are unlikely to contribute to adverse health effects.

Disinfection Byproducts

During disinfection, certain byproducts form as a result of chemical reactions between chlorine and naturally occurring organic matter in the water. These byproducts can have negative health effects if consumerd at high levels overtime. Trihalomethanes and haloacetic acids are regulated disinfection byproducts that have been detected in CRW's water. Removing organic matter during through the filtraition process and regularly flushing the distribution system helps to minimize the formation of disinfection byproducts.

Nitrate and Nitrite - Nitrogen

Nitrate and Nitrite, measured as nitrogen, can support microbial growth (bacteria and algae). Levels exceeding the standards can contribute to health problems. At the levels found in CRW's drinking water, nitrate and nitrite are unlikely to contribute to adverse health effects.

Sodium

There is currently no drinking water standard for sodium. Sodium is an essential nutrient. At the levels found in drinking water, it is unlikely to contribute to adverse health effects.

Total Chlorine Residual

Total chlorine residual is a measure of free chlorine and combined chlorine CRW's distribution system. Chlorine residual is a low level of chlorine remaining in water and is designed to maintain disinfection through the entire distribution system.

Total Coliform Bacteria

Coliforms are bacteria that are naturally present in the environment. They are used as an indicator that other potentially-harmful bacteria may be present. CRW uses chlorine to control these bacteria.

Turbidity

Turbidity is a measure of the water's clarity. Increased turbidity is typically caused by large storms that suspend organic material in the Clackamas River source water. This can interfere with disinfection and provide an environment for microbial growth. CRW's filtration process is effective at controlling turbidity.

Definitions

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Haloacetic Acids (HAAs): By-products of the treatment process that are formed when the disinfectant chlorine combines with organic matter in the source water. Since chlorine is important for disinfection, HAAs will be present, but they are monitored very closely by water utilities.

Parts Per Million (ppm) or Milligrams Per Liter (mg/L): A measure of the concentration of a substance in a given volume of water. One part per million corresponds to one penny in $10,000.

Parts Per Billion (ppb) or Micrograms Per Liter (ug/L): An even finer measure of concentration. One part per billion corresponds to one penny in $10,000,000.

Picocuries Per Liter (pCi/L): A measure of radioactivity.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in drinking water. The addition of disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Units (ntu): A measure of particles in water.

Total Trihalomethanes (TTHMs): By-products of the treatment process that are formed when the disinfectant chlorine combines with organic matter in the source water. Since chlorine is important for disinfection, TTHMs will be present, but they are monitored very closely by water utilities.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Our Commitment to You

Each year our staff collects over 1,000 samples from source to tap to ensure we continue to provide you and your family with clean, safe drinking water. Our water is routinely tested for over 100 regulated and unregulated contaminants.

To view a full list of all the substances that CRW tests for visit: http://crwater.com/water-quality-reports-data/

Cryptosporidium & Giardia

Cryptosporidium & Giardia are microscopic organisms that may cause gastrointestinal disease in some people, especially individuals with conditions that affect the immune system. Currently, there is not an established Maximum Contaminant Level for either of these organisms, and CRW's filtration process is designed to remove them. However, because of the potential health effects CRW tests both raw and treated water for Cryptosporidium & Giarda regularly. Tests administered in 2019 did not detect these organisms in finished drinking water.

Clackamas River Water North (Clackamas) Service Area

UCMR4 Results for 2019

PWSID #4100187

Substance	Minimum	Maximum	Average
Cyanotoxins			
Total Microcystins	ND	ND	ND
Anatoxin-A	ND	ND	ND
Cylindrospermopsin	ND	ND	ND

ND - not detected
All results in ppb

Clackamas River Water South (Clairmont) Service Area

UCMR4 Results for 2019

PWSID #4100594

Substance	Minimum	Maximum	Average
Disinfection Byproducts			
Bromochloroacetic Acid	0.44	1.4	0.78
Bromodichloroacetic Acid	ND	1.3	0.82
Tribromoacetic Acid	ND	2.8	1.33
Dichloroacetic Acid	3.5	13	8.4
Trichloroacetic Acid	24	35	30.3
HAA5	34	42	38.5
HAA 6BR	1.4	4.5	2.9
HAA9	38	44	41.5
Metals			
Manganese	ND	0.73	0.73

ND - not detected
All results in ppb

Unregulated Contaminant Monitoring Rule 4 (UCMR4) Testing and Results

The Environmental Protection Agency (EPA) is responsible for determining those contaminants for which public water systems must test and for establishing levels at which certain contaminants in drinking water pose no known health risk. The EPA requires data in order to make scientifically supported determinations about which contaminants should have a drinking water standard developed. This data is gathered by requiring public water systems to perform investigatory monitoring of unregulated contaminants and submit the results to the EPA. In 2019, CRW tested for the current list of 30 chemical contaminants including two metals, eight pesticides plus one pesticide manufacturing byproduct, three alcohols, and three semivolatile organic chemicals (SVOCs). Assessment monitoring also included three brominated haloacetic acid (HAA) disinfection byproducts groups and the indicators total organic carbon (TOC) and bromide in the South Service Area as well as 9 cyanotoxins and 1 cyanotoxin group in the North Service Area. Of the substances tested, 9 were detected in the finished drinking water.

For more information about Unregulated Contaminant Monitoring Rule 4 (UCMR4) Testing and Results visit:
https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule

Lead & Copper in Drinking Water

Clackamas River Water does not typically detect measurable levels of lead in our source water and has no lead service connections. The main sources of lead contamination in drinking water are from components in home plumbing system. These include lead solder used to join copper pipes and brass or chrome plated plumbing fixtures.

Elevated levels of lead are most likely to be found in homes built prior to 1985 when lead-based solder was still being used in home construction. If your home contains lead-based solder you are considered a "high risk" home for lead exposure through drinking water.

Lead can cause serious health problems if too much enters your body from drinking water. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of the body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

Water Testing

Routinely 30 to 60 homes known to contain lead plumbing components are monitored in CRW's service areas. These houses represent a worst-case scenario for lead in water. Samples are collected after the water has been standing in the household plumbing for more than 6 hours.

A Lead and Copper Rule exceedance for lead occurs when more than 10 percent of these homes exceed the lead action level of 15 parts per billion.

> In the most recent round of testing conducted by Clackamas River Water in 2018 **zero out of 51 homes in the North Service Area exceeded the action level for lead and copper**.
>
> In the most recent round of testing conducted by Clackamas River Water in 2019 **zero out of 35 homes in the South Service Area exceeded the action level for lead and copper**.

How You Can Reduce Your Exposure to Lead

Homes that are at a higher risk of lead leaching from the plumbing system and fixtures are those build between 1920 and 1985. If you are concerned about your exposure to lead you can reduce the risk by taking the following actions:

- Run water for 30 seconds prior to the use if water has been unused for more than six hours.
- Use only cold water for cooking, drinking, and making baby formula. Hot water may leach more metals from your plumbing system.
- Use only lead-free solder when making plumbing repairs.
- Use NSF certified faucets, filters and plumbing fixtures.

Contact NSF International for more information about certified faucets and plumbing fixtures. They can be reached at 877-867-3435, online at www.nsf.org, or by email at info@nsf.org.

Corrosion Treatment

- Clackamas River Water's corrosion control treatment reduces corrosion of home plumbing components by increasing the pH of the water for homes in our North Service Area.
- In the South Service Area South Fork Water Board increases pH and adjusts alkalinity.

Monitoring results have shown these slight adjustments to be effective in reducing lead exposure in drinking water.

Clackamas River Water South (Clairmont) Service Area

Water Quality Results for 2019

PWSID #4100594

N/A - not applicable
ND - not detected

Regulated Contaminant	Detected in CRW's Water		EPA's Limit		Sources of Contaminant
	Minimum	Maximum	MCL or TT	MCLG	
Treated Drinking Water at South Fork Water Board's Treatment Plant					
Turbidity (NTUs)	0.32	0.8	0.3	N/A	Soil run-off
Treated Drinking Water at the Entry Point to the Distribution System					
Barium	N/A	0.006	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate	N/A	0.439	10	10	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Treated Drinking Water from Points throughout the Distribution System					
Disinfection Residual					
Total Coliform (% positive per month)	Not Detected	2%	N/A	N/A	Found throughout the environment
Chlorine (ppm)	0.07	1.24	4 [MRDL]	4 [MRDLG]	Water additive used to control microbes
Disinfection Byproducts					
Total Trihalomethanes					
Running annual average at any one location (ppb)	35.8	51.3	80	N/A	By-product of drinking water disinfection.
Single result at any one site (ppb)	33.6	59.4	N/A		
Haloacetic Acids					
Running annual average at any one location (ppb)	27.8	35.6	60	N/A	By-product of drinking water disinfection.
Single result at any one site (ppb)	19.3	43.8	N/A		
Regulated at the Consumer Tap					
Copper (ppm)	ND	0.03 at the 90th percentile	1.3 [Action Level]	1.3	Corrosion of household plumbing systems.
Single result at any ony site (ppm)	ND	0.09	N/A		
Lead (ppb)	ND	4.0 at the 90th percentile	15 [Action Level]	0	
Single result at any ony site (ppb)	ND	6.0	N/A		
Unregulated Contaminants					
Sodium (ppm)	N/A	11.2	N/A	N/A	Natural deposits and soda ash

Clackamas River Water North (Clackamas) Service Area

Water Quality Results for 2019

PWSID #4100187

N/A - not applicable
ND - not detected

Regulated Contaminant	Detected in CRW's Water		EPA's Limit		Sources of Contaminant
	Minimum	Maximum	MCL or TT	MCLG	
Treated Drinking Water at CRW's Treatment Plant					
Turbidity (NTUs)	0.02	0.08	0.3	N/A	Soil run-off
Treated Drinking Water at the Entry Point to the Distribution System					
Barium	N/A	0.0034	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate	N/A	0.289	10	10	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Treated Drinking Water from Points throughout the Distribution System					
Disinfection Residual					
Total Coliform (% positive per month)	Not Detected	2%	N/A	N/A	Found throughout the environment
Chlorine (ppm)	0.06	1.15	4 [MRDL]	4 [MRDLG]	Water additive used to control microbes
Disinfection Byproducts					
Total Trihalomethanes					
Running annual average at any one location (ppb)	24.5	37.3	80	N/A	By-product of drinking water disinfection.
Single result at any one site (ppb)	24.4	45.4	N/A		
Haloacetic Acids					
Running annual average at any one location (ppb)	19.5	32.1	60	N/A	By-product of drinking water disinfection.
Single result at any one site (ppb)	16.8	46.4	N/A		
Regulated at the Consumer Tap					
Copper (ppm)	ND	0.07 at the 90th percentile	1.3 [Action Level]	1.3	Corrosion of household plumbing systems.
Single result at any ony site (ppm)	ND	0.09	N/A		
Lead (ppb)	ND	2 at the 90th percentile	15 [Action Level]	0	
Single result at any ony site (ppb)	ND	4.0	N/A		
Unregulated Contaminants					
Sodium (ppm)	N/A	5.6	N/A	N/A	Natural deposits and soda ash